

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, the claims have been amended for clarity.

The Examiner has rejected claims 1-11 and 14-16 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,154,545 to Kohut et al. in view of U.S. Patent Application Publication No. 2005/0195981 to Faller et al. The Examiner has further rejected claims 13 and 17-20 under 35 U.S.C. 103(a) as being unpatentable over Kohut et al. in view of Faller et al., and further in view of U.S. Patent 4,095,049 to Gerzon. In addition, the Examiner has rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over Kohut et al. in view of U.S. Patent 6,173,061 to Norris et al.

The Kohut et al. patent discloses a method and apparatus for two channels of sound having directional cues, in which an N-channel audio signal is encoded into left and right signals.

The Faller et al. publication discloses frequency-based coding of channels in parametric multi-channel coding system, in which a multi-channel signal is encoded into a sum signal and a side information signal (which the Examiner equates to the claimed spatial parameters).

The Examiner now concludes "At the time of the invention it would have been obvious to a person of ordinary skill in the art to transmit the spatial parameters of Kohut with the encoded left and right signals to a decoding side. The motivation for doing so would have been to reduce the processing load of the encoder."

The subject invention includes encoding the multi-channel audio signal into left and right signals and spatial parameters, and "processing said left and right signals in order to provide processed signals (L_{0w} ; R_{0w}), in which said processing is controlled in dependence of said spatial parameters (P)".

Applicants submit that while Kohut et al. uses spatial parameters in processing the multi-channel signal to form the left and right signals, as described in the subject specification on page 2, lines 1-3, this comes at a considerable expense, since the spatial parameters need to be applied to all of the channels individually.

The Examiner now states "Kohut teaches a method of processing a stereo signal (fig.IA #115) into left and right signals, wherein the left and right signals are further processed in dependence of spatial parameters, as performed by the Head Related Transfer Functions (HRTF's) of figure 4 (See: col.4 ln.54-67, col.5 ln.1-11). The present claim language does not exclude the spatial processing of each input channel individually as performed by Kohut, therefore the disclosure of the prior art meets the present claim limitations.

Applicants submit that claim 1 (as well as claims 15 and 16) now clearly indicates that an N-channel signal is encoded into left and right signals and spatial parameters, and that these left and right signals are (post-)processed in dependence on the spatial parameters.

Applicants further submit that Faller et al. does not supply that which is missing from Kohut et al.

The Gerzon patent discloses a non-rotationally-symmetric surround-sound encoding system, in which the encoding matrix is invertible for effecting a reverse processing of the encoded signals. However, Applicants submit that Gerzon does not supply that which is missing from Kohut et al. and Faller et al., i.e., a "method of processing a stereo signal obtained from an encoder, which encoder encodes an N-channel audio signal into left and right signals (L_0 ; R_0) and spatial parameters (P), the method comprising:

processing said left and right signals in order to provide processed signals (L_{0w} ; R_{0w}), in which said processing is controlled in dependence of said spatial parameters (P)."

The Norris et al. patent discloses steering of monaural sources of sound using head related transfer functions, in which arguably the equation of claim 12 is shown. However, Applicants submit that Norris et al. does not supply that which is missing from Kohut et al., i.e., "A method of processing a stereo signal obtained from an encoder, which encoder encodes an N-channel audio signal into left and right signals (L_0 ; R_0) and spatial parameters (P), the method comprising:

processing said left and right signals in order to provide processed signals (L_{0w} ; R_{0w}), in which said processing is controlled in dependence of said spatial parameters (P)."

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1-20, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by /Edward W. Goodman/
Edward W. Goodman, Reg. 28,613
Attorney
Tel.: 914-333-9611